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Ethical aspects and the prevalence of hormone abuse in sport

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Abstract

Abuse of hormones by sportsmen or sportswomen might lead to some serious health consequences for the individual user. Such abuse also damages the very spirit of sport, cheating fellow athletes, the officials and spectators. Where hormone findings cause most controversy is with endogenously produced substances. Some hormone findings might be indicators of a medical condition, and it requires sensitive handling to discover the facts. Examining the prevalence of hormone abuse using a theoretical perspective on ethics permits a philosophical study of the dilemmas facing sport, and a clearer identification of the issues that science can help sport to resolve.

This paper looks at the way in which rules on doping have evolved in an attempt to set out the ethical standards that should apply and to discuss how some sportsmen and sportswomen have worked around the rules, challenging them to the extent that the anti-doping system itself is questioned. The data emerging from the testing programmes give one guide to the actual prevalence of

hormone findings. However, as not all findings may constitute doping offences this cannot be said to be the definitive guide to the extent of hormone abuse.

Use of hormone medications with or without a therapeutic indication further complicates the disciplinary process. Sensitive management of hormone findings is absolutely necessary to avoid accusations of doping or embarrassing breaches of confidentiality when the origin may be a serious medical condition.

Because hormone findings require careful consideration, the door is open for the anti-doping system to be exploited by unscrupulous scientists, raising challenges that test the limits of credibility. Sex, alcohol and decomposition are arguments that have been put forward to explain findings. A close partnership between scientists and sport is called for to avoid the athlete becoming a victim of the rules that are intended to protect sport.

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As an administrator and someone responsible for the policy aspects of the UK's anti-doping programme, attempting to explain or trying to account for why or how the sports community has managed the problems associated with hormones and sport is a major challenge. My intention is to put the sports administration 'spin' on the areas of ethics and hormone abuse. My approach will be simple; first, a brief examination of ethical theories and their application to the rules that prohibit doping in sport, then to apply the theory to the practical issues and in particular to look at the prevalence of hormone abuse in sport, both here in the UK and worldwide. I cannot guarantee any solutions to the problem, only to confirm that there is a problem that will require co-operative action if we are ever to address the prevalence of the use of hormones in sport. Perhaps a useful concluding thought would be to consider whether hormone abuse is something that should be addressed or accepted in sport.

The abuse of hormonal substances is extremely prevalent in sport. How can I make such a generalisation? If you

look at the very basis of sports – testosterone is a critical component. By approaching the prevalence of hormones from the ethical perspective we can start to examine what is acceptable, what is allowable and where the dividing lines should be drawn.

The ancient Greeks supported the humanistic ideals that people were born into aristocracy and that one's position in society was established through blood lines. Participants in the Olympic Games were eligible because of their place in society. That did not stop early reports of drug misuse. Galen, in the third century BC, reported that Greek athletes used stimulants to enhance their physical performance. At the ancient Olympic Games, athletes had special diets and were reported to have taken various substances to improve their physical capabilities. The winner of the 200 m sprint at the Olympic Games of 668 BC was said to have used a special diet of dried figs (Finlay & Pleckett 1976)! This scenario is not so far removed from the supplements that feature in today's sports nutrition support programmes for athletes.

Women were excluded from these Games, although there is a suggestion that one unofficial female participant – a Greek woman called Melpomene – ‘crashed’ the Marathon in protest. Ironically the entry of women into the Olympics occurred as a result of the laissez-faire arrangements between the International Olympic Committee (IOC) and the host cities of Paris in 1900 and St Louis in 1904, and culminated in more formal arrangements to include women’s events in the London Olympics in 1908. The IOC’s response was to restrict the inclusion of women to a few events appropriate to an ideal of feminine activity but to locate them outside the official programme. Women’s events were made official but were not given equal status with men’s competitions until 1924.

So the early Olympics sidestepped one of the more modern controversial issues about hormones and sport by allowing only men to participate; there was no question of gender testing in those days as men competed naked! The very exclusion of women from the Olympic Games was itself an ethical question but undoubtedly of cultural origin. One might argue that it was concerns about the hormone profiles of some of the more masculine women athletes that led to the introduction of gender testing in 1968. Was it to identify hormone abuse by women or was it to stop men participating as women? If it was to identify hormone abuse then gender verification methods were unlikely to ever stop the abuse of hormones by women, but perhaps there was no real will to identify this abuse (Hargreaves 1994). More of the problems raised by women’s hormones in sport later.

More rationalist views have resulted in today’s achievement-oriented society, where athletes work to reach goals and a favoured position in society – and perhaps take a shortcut to achieving this. Athletes in a position to represent their country or professional team may have the opportunity to earn large financial rewards, whether from salaries or sponsorship endorsements. At the minimum they are able to earn recognition for their achievements. The emphasis that society in general places on success in sport filters down to all levels, increasing the pressure to perform well.

Ethical theories can help to establish the rights and wrongs of different areas in the practice of sport, by subjecting them to philosophical analysis. For example, sports medicine and medicine in general are governed by an ethic that is committed to restoring and repairing, as much as is humanly possible, the form and function of a human being. The ethics of sports physicians are often tested to the limit by pressures that influence the decision on fitness to participate.

Ethics also dictates that athletes at the elite level should be treated as people and that they should be involved in important decisions about their training and performance, as these are activities that will affect their lives. One might imagine that athletes would be involved in decisions about the regimes that are supposedly intended to protect their

interests, such as the testing programmes. Rarely have athletes been consulted and yet, if they were able to guide the testing procedure, they might provide a most interesting insight into the regimes of substance use and misuse, as well as the way to provide the most effective deterrent. Is it that athletes’ views might be too extreme? It was athletes who called for a life ban from sport for steroid abuse, yet the system seems to be unable to rise to this challenge and has a sliding scale of penalties that might conclude in a simple smack on the hand for being caught taking steroids in only a matter of years.

It follows that athletes should be involved in decisions about their use of hormone substances and given the choice about whether to take this particular pathway. There is clear evidence that some of the hormonal substance abuse programmes have been introduced without the permission of the athlete. The logical response to this would be to consider the athletes as victims of wrong-doing. Is there anyone who does not believe that the supply of hormones to vulnerable young, predominately female, athletes is an abuse of power?

It is interesting to note the more recent challenges being levelled at the strict liability principle (i.e. the athlete is responsible for what is in his or her body), which, in principle, is a clear determination of right from wrong. An element of subjectivity now enters the debate about whether the athlete knowingly or unknowingly was administered or consumed a prohibited substance. (I’m not sure if that means with the athlete’s permission . . . no doubt some clever lawyer would be able to argue that knowledge does not necessarily constitute consent!) This has certainly been a point of debate in the application of a sanction and in some quarters has caused almost a paralysis in the effective management of a laboratory finding.

In an ideal world, objective tests would be used to justify decisions and situations. By objective, I mean without the interference or unfair influence of vested interests. Vested interests can often become the unfair determinants of decisions and it is helpful to keep in mind the question of whose interests are being served. No doubt this has been part of the debate surrounding the introduction of blood testing at the forthcoming Olympics. Is it in the interests of the athletes to deter or detect hormone abuse or is it in the interests of the officials to ignore the prevalence of the substance abuse? Is it in the interests of athletes to have their reputations protected as drug-free athletes or to have the level playing field endorsed?

Using ethical theories in such situations can provide a tool by which decisions can be made and a framework of decisions can be formulated into rules that guide behaviour. To ensure consistency, the framework that exists in sport is rule-based. These rules must be obeyed by all participants. In other words, the determination of what is right or wrong behaviour cannot be based solely upon personal views. If that were the case, then ethics and ethical codes or the rules that form the practical application

of those codes would be merely the voice of the majority or those in positions of power. This could itself lead to abuse. We know already that different sports apply themselves differently to the issue of drug misuse and doping. A hormone-positive test in rowing could lead to a life ban for a first offence, yet cycling would not apply a life ban until the third offence. Ethical decisions are best made from some form of theoretical basis that can inform the issues, set them in context and enable the decision to be applied. There are two general categories of ethical theory I should like to examine, results-based or consequential theory, and duty based or deontological theory.

Consequentialistic theories judge actions based on their results or consequences. An action is good or ethical if it produces more good results than bad. Bad actions are those that produce the opposite. A common response to this approach to the theory is to ask for whom are the results good or bad (Bruckner 1987). Using this theory, we cannot determine whether an action is ethical or not until after the action has occurred. The end result is more important than how it came about.

One such consequentialistic theory developed by John Stuart Mill is termed utilitarianism, which deems actions to be good if they produce the greatest good for the greatest number of people (Campbell *et al.* 1992). Utilitarianism advocates the understanding of the consequences of actions and of conforming to rules promoting these ideals (Tschudin 1994). One of the main arguments against utilitarianism is that it allows the strength of the majority to violate the minority. In the case of a top athlete, the majority could be the team, the fans, the sponsors, the administrators and officials, even the country. The greatest good is undoubtedly the happiness and recognition of winning but without the scandal of evidence of drug misuse. The athlete's abuse of drugs (with the inherent damage to personal health and moral standards) is supposedly outweighed by the happiness caused by winning (to say nothing of the potential financial benefits and associated accolade). In order to satisfy the criterion for the greatest good for the greatest number, the athlete needs to take shortcuts, and the coach or medical professional needs to compromise his or her integrity by offering drugs instead of expertise, or by turning a blind eye to their use. Utilitarianism might be argued as the justification for the institutionalised doping that featured in the former East Germany, i.e. the results of East German sporting domination were for the greater good. However, using the athlete as a catalyst for the happiness of the people could be regarded as manipulative and certainly exploitative.

Deontological philosophy holds that all actions must only occur after an ethical foundation has been established. Deontologists suggest that ethics need to be founded on firm and lasting principles applicable to many situations. Such ethics aim to establish the ideal or what should be,

not what is. This logic is illustrated in the guiding principle that sport should be drug free. Evidence clearly demonstrates that it is not drug free.

Kant, in one of his theories, suggests that a person should do his duty as part of the community. The community, acting in the same manner, would be satisfied by carrying out the same action (Campbell *et al.* 1992). In theory, this should provide another justification as to why athletes should maintain sport drug free. Sport, however, presents us with more complex ethical dilemmas. Performing your duty regardless of the consequences is an admired quality for individuals to possess but, in performing your duty, is the highest good always obtained? What if a person has more than one duty and these duties oppose? The athlete is an individual yet is also a member of a team and a representative of his/her country, and has duties to the coach, team manager and even the funding agency. The potential conflict of duties must be resolved by the establishment of rules. In the same way, conflicts between competing values and ideals should, in theory, be resolved by reference to the rules.

The ultimate aim of an ethical approach is the creation of standards or rules that clearly delineate ethical behaviour. These ethical guidelines must be readily available for all those involved in sport. Sport has established rules on the issue of drug use; to offer a single solution that should be considered acceptable to the majority and is the most satisfactory among a range of alternatives. Some dilemmas, such as should drugs be permitted in sport or not, may have no single best solution. Once you add the complexities of therapeutic use of hormones for contraception or for sexual function, can the same rules apply? Some solutions are more acceptable than others or may have more specific application, and this can add to the confusion of what the rules really are.

Not only do we have rules that make the misuse of drugs unacceptable behaviour, we also have rules allowing the authorisation of testing programmes to check that the doping rules are being maintained by the majority, and that athletes are not being exploited or exploiting others. Further rules set out how findings should be managed, how laboratories must operate and how the disciplinary process should operate to ensure natural justice. Of course rules must be subject to review if they are to progress with developments in science and in society. However, it is also clear that the application of rules can lead us into questions of interpretation, and this adds grey areas to the issues. Rules must be current, clearly communicated and adequately enforced. One obvious example of this going horribly wrong were the early attempts to enforce the restriction of the female contraceptive pill, when an official directive advised that female athletes should be told to cease using this medication! Fortunately the general response from the sporting world was – you must be joking! Early attempts to control blood doping suggested searching for needle marks on the arms of athletes. One

positive response to the problem of interpretation has been the publication of the judicial decisions of the International Amateur Athletic Federation arbitration panel (1985–1999), which provides an authoritative guide to the principles behind decision making (Tarasti 2000).

I turn now to the prevalence of hormone abuse in sport. The use of anabolic agents by athletes has become widespread, in particular in strength, power events and body-building and stamina activities. The pretext for their use is to increase muscle development, but there is no strong evidence to show that anabolic agents exert a direct growth-promoting effect on muscles, except in female athletes and prepubescent males. Yet the preliminary evidence that emerges from the testing programmes shows that, in general, men feature more highly as mis-users of hormone drugs than females, although the data should also be considered in the context of the domination of sports competitions by men's activities. Also it is worth noting that the rewards that are available to male athletes have, until most recently, been greater than those available to women.

Drug misuse trends in sport have changed from the use of the relatively short-term acting stimulants towards administration of androgenic anabolic steroids, presumably in an attempt to increase muscle size or strength. What they also illustrate was a significant move to planned and organised drug misuse. Originally, injectable steroids were used, as injectable forms are oil based and fat soluble, and their release into the body system is slower and ongoing as fat stores are broken down (Le Bizec *et al.* 1999). The first rule banning steroids from sport came in 1974 when the IOC added anabolic steroids to their prohibited substances list. In 1983 the first endogenous steroid, testosterone, was added. It was a further year before the detection method for testosterone was introduced.

Oral administration of androgenic anabolic steroids provides a more convenient regime for the athlete determined to seek an advantage from hormones. As these forms are water soluble, the shorter clearance time in the body makes their use more popular among athletes subject to drug testing. However, the athlete is clearly having to take a chance, clearance times are likely to be dose-related and may be difficult to calculate with any certainty. Oral steroids can be more dangerous, with an increased risk of liver disease. Yet if the decision has been made to take the first step to break the rules, the secondary risk to health may be of lesser concern. Growth hormone was added to the list in 1989, and a validated approved detection method is still awaited, despite the efforts of Professor Sonksen at St Thomas' Hospital. Erythropoietin testing was introduced at the Sydney Olympics, using combined urine and blood detection methods. Blood testing will offer greater opportunities to investigate hormone substances. So the use of steroids will continue to be a challenge to sport.

'It's pretty clear that steroids are worth the price of a metre at the highest levels of sport' (Charlie Francis, Ben

Johnson's former coach, speaking at the Dubin inquiry (1990)). The early testing programmes were focussed upon competitions and led to a situation where 'only the careless or the ill advised' were to fall foul of the testing regimes of the day, even if they had been fairly applied. Reports of manipulated sample collections, of results being destroyed and of complicit activities preventing the revelation of the true extent of drug misuse make it difficult to assess the actual prevalence of hormone misuse.

Short-notice out-of-competition testing has increased the potential deterrent for those athletes who are subject to this type of testing programme; however, as world-wide out-of-competition testing is not implemented on any large scale this has left a further loophole that can be exploited. One major feature in the out-of-competition testing programmes that affects their effectiveness has been the availability of athletes and the relaxed response of governing bodies to the absence of their athletes from regular testing. The only way to reverse the trend of 'cat and mouse' pursuit of athletes by sampling officers is to require athletes to present a weekly body fluid sample that can be reliably checked for age and ownership (perhaps through DNA testing) by a process of random testing. The main cost of the programme would move from sample collection to storage, and the emphasis of the programme would become protection of the athlete's reputation rather than accusation of apparent drug misuse.

Criticisms of the ineffectiveness of competition testing and the seeming delay in any introduction of out-of-competition testing by sport left the way open for government intervention into the operating standards of national programmes. Statistics from the testing programmes are not the most reliable indicator of drug misuse, as the general perception may be that if one athlete has tested positive then the other athletes were not also using drugs.

It is now over 10 years since the Games of the XXIV Olympiad ended in uproar and moral panic induced by Ben Johnson's positive test. The shock was occasioned by the almost unthinkable event of a top athlete actually being caught taking drugs in competition and a major competition at that. So although it is difficult to find hard evidence of the nature and extent of drug-taking amongst top athletes, there is little doubt in the minds of those in the know that it is going on. The Ben Johnson saga confirmed what we already had good reason to suspect had been happening for a long time. It is true that stimulant abuse has been virtually eradicated, because it is so easily tested for. But the evidence seems to show that, in other areas, the athletes are often one jump ahead of the testers, and the suspicion must be that medal winners other than Johnson may also have been drug assisted, and that the athletes and their advisers are maintaining their advantage over the testers.

The 1980 Moscow Games reported *no* positives out of 1667 tests. In Los Angeles in 1984 there were twelve. The

Table 1 Statistics from testing – IOC laboratories

Year	Total number of A samples	Number positive for steroids	% positive for steroids
1999	118 259	973	0.82
1998	105 250	856	0.81
1997	106 561	967	0.91
1996	96 454	1131	1.17
1995	93 938	986	1.05
1994	93 680	891	0.95
1993	89 166	940	1.05
1992	87 808	717	0.82
1991	84 088	552	0.66
1990	71 941	579	0.81
1989	52 371	611	1.17
1988	47 069	791	1.68

Source: IOC Statistics (released annually).

Atlanta Games were marred by reports of the positives that never were, but in whose eyes? Does this represent the true level of drug-taking amongst Olympic athletes? Or does it represent the spectacular failure of the anti-doping programmes, despite their expensive resources? If athletes are caught because of new testing methods introduced at the last minute, the ethical issues this raises would keep the legal profession extremely busy!

Perhaps we should be reassured by the reports of the comprehensive testing regimes that preceded and covered the Sydney Games, where, for the first time, the authorities and inspection teams crowded into the doping control stations, laboratories and disciplinary hearings to ensure fair processes. Has this all gone too far? Statistics published by the IOC-accredited laboratories provide at least one set of data we can refer to. Since 1986 anabolic steroids have been the most frequently detected substance, consistently representing a significant percentage of the findings (see Table 1). However, the data may include competitors tested on more than one occasion.

Regrettably the changing categories on the IOC-prohibited substances list make it difficult to make precise comparisons – for example, peptide hormones were introduced as a category in 1989 and additional substances are included from time to time. One recent change for the good has been the focus of testing male athletes (instead of all athletes) for human chorionic gonadotrophin (hCG) which has reduced the possibility that hCG would be identified in the urine of a pregnant female and present the anti-doping administration with an ethical dilemma about sharing confidential medical information with the governing body of sport. The statistics from the UK Sport testing programme (see Table 2) show the number of findings (these may relate to more than one test upon an athlete) for anabolic agents and peptide hormone substances. The popularity of steroids is, we understand, being replaced by hCG for which there is an approved detection method or

Table 2 Statistics from testing – UK Sport programme

	95/96	96/97	97/98	98/99	99/00
Hormone/anabolic agents					
T/E ratio	4	16	4	6	5
Stanozolol	2	7		4	2
Methenolone			1		2
Methandienone	4	1	3	1	4
Oxymetholone	1			1	
Fluoxymetholone			1		
Nandrolone	4	3	4	8	20
hCG		1			3
Total	15	28	13	20	36

Source: UK Sport Annual Reports.

human growth hormone for which there is no approved detection method.

The unprecedented level of nandrolone findings and the beginning of what is being termed internationally as 'a British problem' was the reason for setting up a Nandrolone Review Committee (2000). This Committee of eminent scientists chaired by Professor Vivian James concluded that some of the more contentious issues, such as nandrolone originating from food sources, were highly unlikely but that avoiding a diet of boar or pig offal might be prudent! To help clarify the situation with respect to the analytical standards, their examination concluded that the reporting requirements of the IOC were sound, but guidance as to the concentration level of nandrolone metabolites that might constitute abuse would be helpful. Regrettably this has not stopped the system being challenged and criticised, but it has made a step in the right direction. UK Sport is about to set up the same type of review of testosterone.

There are several other ethical dilemmas that the use or misuse of hormone substances can raise. Is it cheating? – I have already mentioned the contraceptive pill. Whilst this is permitted for women, how long before men are trying to claim equal rights with the new testosterone patches? What about pregnancy as a way of legally boosting hormones in the system? Could females also use hCG with impunity? If there is medical justification for the use of testosterone or hormone replacement therapy, can we prove therapeutic indications? In this enlightened world just how will the testing system cope with the possible increase in transsexuals competing at the elite level? These ethical dilemmas continue to challenge us and require us to examine our decisions and management carefully.

By good confidential communication we can deal effectively with hCG findings in both males and females, and we can manage further testing for confirmation of elevated testosterone or suppressed epitestosterone – with a little co-operation from the athlete. Where we have had difficulty is when an athlete refuses to obtain a medical opinion and the disciplinary panel then conclude that the

case is not proven. What would be helpful are more definitive guidelines on what constitutes an offence – is the report from the laboratory sufficient? If not, what levels, indicators, or combination of factors would be the baseline? Athletes themselves are heavily reliant upon science to protect their interests.

Some of the defensive arguments raised by athletes certainly test the limits of credibility. The explanation for excessive testosterone in one case was attributed to a combination of sexual activity and alcohol. The argument is usually communicated through the media, leaving the scientists who listen to these fantastic theories wondering how that could be and can it be replicated in an independent study. Not that scientific validity is important to the lawyer who is seeking to raise any chink of doubt to argue that his client should be given the benefit of the doubt.

I am the first to argue that the system must be fair but it must also be upheld. The argument continues over what constitutes drug misuse as some banned substances are found naturally in the body, leading to claims of high natural levels of testosterone or growth hormone, and even nandrolone. Critics argue that this level has been arbitrarily set without scientific evidence.

It is, of course, difficult to determine by laboratory analysis of a single urine sample if the presence of a low level of a substance is not simply the result of the last few days of excretion rather than inadvertent use. Urine analysis cannot tell us, the disciplinary investigation might. But there is no doubt that athletes are prepared to make use of these substances to assist their performance. The contest has become one between doctors and biochemists on the one side and the regulating authorities on the other. The athlete becomes the victim of the science that should be assisting performing fairly. Health risks are simply ignored and other athletes may believe they cannot participate on the same level unless they too are prepared to use substances to improve performance. Genetic and chemical manipulation has become a scientific reality so it is hardly surprising that some athletes are no longer able to rely on their natural abilities and skills. The Dubin inquiry (1990) reflected this.

Perhaps the most worrying aspect of the future is the acceptance by athletes that supplements to their performance are necessary and allowable. Their intention is undoubtedly performance enhancement but the supplements may actually contain steroid substances with no indication on the label that this is so.

If the testing programme has identified a finding it is that the most frequent response by an athlete has now become denial, despite overwhelming evidence to the contrary. The denial then reaches a public confused by the whole issue. No smoke without fire applies to the credibility of the system as well as to the athlete's reputation. The challenge to the integrity of sport must be countered and this can be continued successfully by a partnership between science and sport.

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